

CROWN GALL OF CHRYSANTHEMUM

J. W. Miller¹

During the mid-1970s, several commercial Florida chrysanthemum growers experienced an outbreak of crown gall on field and shadehouse Chrysanthemum X morifolium Ramat growing in the ground. Although crown gall has been known for many years to occur on the basal stems of plants (4), only recently has the disease been noted on leaves and upper stems of chrysanthemum as well (1,2). In 1985, potted mums sent from California were also observed with crown gall on the leaves.

SYMPTOMATOLOGY. On the lateral or mid-veins of the leaves, galls appear smooth and light tan-colored, measuring 2-4 mm in diameter. Galls develop on both sides of the leaves (Fig. 1A). Stem and crown galls are typically convoluted and reach diameters of 4-5 mm (Fig. 1B). In the case of chrysanthemum, the bacterium has been shown to be systemic throughout the plant, as evidenced by isolation of the bacterium from various areas distant from the gall (2). Injury is necessary for disease development.



Fig. 1. Agrobacterium tumefaciens on Chrysanthemum X morifolium. A) Mum plants with crown, stem and leaf galls. B) Close-ups of stem gall showing convoluted gall outgrowth.

¹Plant Pathologist, Bureau of Plant Pathology, P. O. Box 1269, Gainesville, FL 32602.

CONTROL. Control is achieved by removal of infected plants and fumigation of the soil. Avoid propagating from any infected plant, as the bacterium is systemic and can be transmitted through cuttings. Sterilize any tools used on infected plants by dipping in 70% isopropyl or ethyl alcohol or 10% commercial bleach. Plant resistant varieties when possible. About 10% of 237 varieties tested were resistant to the bacterium (3).

SURVEY AND DETECTION. Look at the soil line, along stems where lower leaves were removed or where pinches were made, or on damaged leaves for smooth to convoluted, tan- to brown-colored galls.

LITERATURE CITED.

1. KOHN, S. 1974. *Agrobacterium tumefaciens* as a causal agent of tumors on leaf and stem of chrysanthemum. *Nachrichtenbl. Dtsch. Pflanzenschutzdienstes* (Braunschw.) 26(7):97.
2. MILLER, H. N. 1975. Etiology of leaf, stem, crown and root galls of chrysanthemum induced by *Agrobacterium tumefaciens*. *Phytopathology* 65:805-811.
3. MILLER, H. N., J. W. MILLER, and G. L. CRANE. 1975. Relative susceptibility of chrysanthemum cultures to *Agrobacterium tumefaciens*. *Plant Dis. Rep.* 59:576-581.
4. SMITH, E. F., and C. O. TOWNSEND. 1907. A plant tumor of bacterial origin. *Science* 25:671-673.